



Project Proposal for Small-Scale Blended Learning Funded Projects

(under the Top Sliced TDG Project hosted by TLC “Advancing Blended Learning @ Lingnan to a New Stage”)

(Updated in December 2020)

Key Criteria:	
Intended learning outcomes clearly articulated	Blended learning project deliverables clearly outlined
A robust project implementation approach	Impact on Student Learning
Innovative approach to blended learning	Partnering University

Basic Information:

Project Title:	Facilitating the experiential and peer-to-peer e-pedagogy via social learning		
Role / Name:	Post:	Faculty/ Department/ Centre/ Unit:	Email:
Principal Project Supervisor (PPS) / {insert name}	Prof. XIE Haoran	CDS	hrxie@ln.edu.hk
For TLC use only:			
Project Code:		Account Code:	
TLC Staff Liaison:		Funding Approved:	

1 Project Summary

The project summary should clearly and succinctly describe the project and be suitable for use **on the TLC website**. It is vital that this summary includes references to the intended impact of the project on the quality of student learning / adoption of Blended Learning. (Approx. 10-15 lines / 300 words)

Amount of funding requested (Maximum of HK\$50,000): \$ ██████████	Amount of Faculty/ Department/ Centre/ Unit contribution: \$ <i>(NOTE: Faculty/ Department/ Centre/ Unit funding is not a requirement, please indicate if funding has been provided from any other source or similar project)</i>
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2 Project in context

(i) Project Objectives

21st century education requires pedagogy that are both more meta-cognitive as well as suitable for digital environments (e.g., blended learning). In particular, experiential learning and peer to peer

learning is a critical need for liberal arts education, where empirical evidence has proven increases in competency development, creativity and learning gains. Despite this, there is little evidence of such pedagogies being utilized in technical education like information system and data science education. This gap in extant knowledge has motivated the proposed study, whereby an experiential, and peer to peer e-pedagogy - online social learning will be implemented in a class of data science/information system course in a liberal arts university (Lingnan University). Students will complete activities designed for co-creation focusing on goals and achievements like data visualization sharing and feature discussions. At the end of the semester, data collection will include social engagement metrics like videos watched, number of comments, to be compared with the quality of learning output. This study will be the first of its kind that incorporates experiential learning into software (computer) education in a liberal arts setting, through social learning to encourage co-creation and peer to peer engagement, and essentially help us to understand such a digital virtual environment can potentially help to scale up its effects and benefits.

(What are your objectives in initiating this project? Why is it needed and how does it relate to the institutional, faculty or departmental strategic goals in relation to teaching and learning? Why and how would preparing a subject (or part of a subject) in the blended learning mode enhance students' understanding?)

(ii) Student Impact

Programme/ course code	Programme/ course title	No. of credits	Mode of study	Student intake quota per term
CDS 3003	Machine Learning	3	Full-time	around 25
Partnering University / External Parties:				

Please insert rows in the table for additional information. Try to avoid broad statements like 'ALL Courses in Lingnan will benefit'. At least one specific Course must be indicated. Ideally the project will involve a collaboration with a partner University.

(iii) Project in Context

This section should clearly describe the context of the project. What is the issue/problem and why is it of pedagogical significance to implement a Blended Learning solution? In answering this question, references should be made to educational and discipline-based literature or benchmarks in order to explain and justify how the proposed initiative will enhance student learning. (approx. 10 – 20 lines / 500 words)

A shift in 21st century skill needs has led to increasing focus on meta-cognitive driven pedagogies like critical thinking, problem solving, collaboration, and innovation [1][2]. Data science/information system will play a critical role for digital transformation, where big data will provide a foundation for a digital economy [3]. However, despite empirical evidence [4] that shows that experiential learning (in particular peer to peer interactions) has a significant positive effect on competency development, specifically in liberal arts education [6], it is significantly under-utilized in software technical skills education [5]. Furthermore, due to the popularity of social networks, although signs of experiential (in particular peer to peer aspects) and observational learning [7] have been seen in social learning, little evidence of its usage is seen in data science/information system education. This

gap in extant knowledge has motivated the proposed study, as a part of which the use of a purpose-built social learning mobile application (Soqql) for sharing student-generated content and peer-to-peer communication for co-creation knowledge is analyzed for data science/information system education, in an liberal arts university.

Experiential learning [8] encourages conversation, reflecting, thinking, and the development of expertise. In this study, the use of a digital learning space within a mobile device (on the Soqql app) will allow students to upload their own content in the form of pictures and videos, and exchange peer-feedback with each other. Such knowledge-exchange is therefore expected to lead to increased reflective observations and concept development (Fig. 1.), which are critical components in the learning stages [8] of experiential learning.

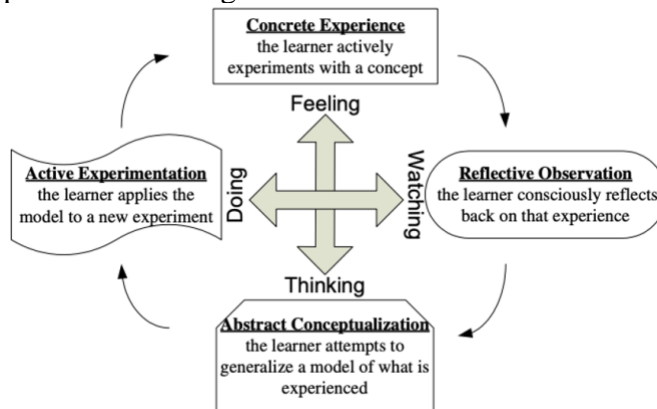


Fig 1. Four stages of the Kolb’s Experiential Learning Cycles [8]

Conducted over a semester in the information systems management or machine learning course of Lingnan University, students will perform assessments with a co-creation focused learning method, such as data visualization assessments, feature engineering discussions (to explore properties that can fit models). As experiential learning is more energy-intensive due to multi-faceted needs [9] like duration of activities, feedback, and preparedness, assessment activities will incorporate achievement goals (Fig.2.) [10] to maintain the required self-regulation. Data will be collected at the end of the semester, in the form of number of engagements (views, comments etc.) and compared with the depth and quality of the formative assessments. A survey will also be conducted to measure participant feedback on how the activities and the use of social learning meets the objectives of facilitating achievement of achieving the learning objectives with the same constructs identified in Fig.2.

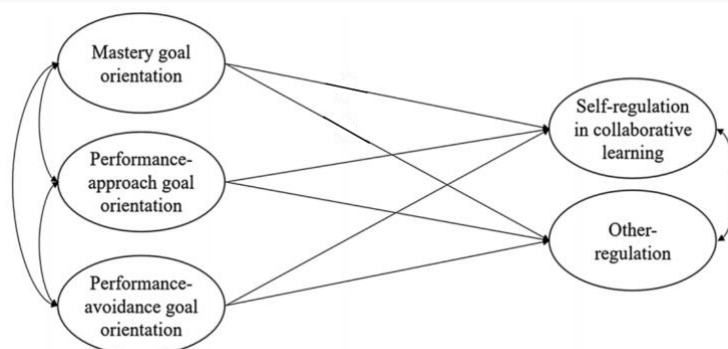


Fig. 2. Co-regulation model for achievement theory [10]

This study will be the first of its kind that incorporates experiential learning into software (computer) education in a liberal arts setting, through social learning to encourage co-creation and peer to peer engagement, and essentially help us to understand such a digital virtual environment can potentially help to scale up its effects and benefits.

(iv) Project Activities, Timeline and Evaluation Strategy

Major deliverables (including but not limited to blended learning materials and descriptions)	Target date for achieving the deliverables (mm/yyyy)	Evaluation / Quality Assurance strategy
Initiation Literature review and recommendations	02/2022	Core team review + independent reviewer
Development Preparation and design of student assessment/online materials for in scope modules (science, economics and Chinese topics).	03/2022	Core team review
Survey Design Complete focus group plan and survey design	04/2022	Core team review
Implementation Post action review: Conduct focus group and complete transcriptions. Complete surveys for in scope students----	05/2022	Inter rater reliability test and PCA / construct validity test (Tbc)
Data Analysis & Review Action items / follow up	07/2022	Core team review + independent reviewer
Final Project Report (Compulsory within 1 month of the Project finishing)	08/2022	A final project report will be produced by the PPS and feedback will be sought from TLC prior
Dissemination via Internal Staff development workshop or Showcase Journal publication (Note: PPS is expected to disseminate the project findings within one year from the project end date. TLC will work with PPS for the presentation arrangement).	12/2022	Informal Feedback will be sought from participants

3 Budget

(i) Breakdown

[Not for publication]

(ii) Faculty/ Department/ Centre/ Unit: contributions and support (IF Applicable):

Item/s (tick all that apply)	Description/s
<input type="checkbox"/> Personnel <input type="checkbox"/> Space <input type="checkbox"/> Hardware <input type="checkbox"/> Software <input type="checkbox"/> General expenses	Space will be provided for visiting consultant(s), as well as necessary computer hardware and software.

<input type="checkbox"/> Additional funds from departmental account	
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4 CV of the Principal Project Supervisor

Please Include below a CV of the PPS of not more than 1 page. The CV should identify the relevant professional experience of the project coordinator(s), including previous project experience. If Co-Supervisors are listed, please also state their relevance to the project in no more than 300 words.

[Not for publication]

5 Important Notes: Copyright & Intellectual Property

(i) Copyrighted Materials: The University is committed to comply with copyright and intellectual property rights in Hong Kong and will strive to ensure the applicable copyright laws, regulations, guidelines and practices are adhered to. The Principal Project Supervisor is solely responsible for ensuring that all material provided to TLC is cleared of any copyright obligations. TLC accepts no responsibility for any claims or losses caused by any misuse of copyrighted materials used in this project by reason of its support of, and services rendered to, the project.

(ii) Educational Use: The ownership of the intellectual property generated by this project shall belong jointly to the _____ (Fac / Dept / Unit) and Lingnan University. Permission is given for the Teaching and Learning Centre of Lingnan University to adapt, use and disseminate for educational purposes all or part thereof in respect of the materials and the resources developed for the purpose of this project. Due acknowledgement will be given to co-creators of material for this project.

6 CONSIDERATION OF RESEARCH ETHICS

Section A

I confirm that the proposal involves research on human subjects. (*Please delete as appropriate.)

If you said ‘involves’ above, please complete the remaining sections below by marking ‘X’ in the appropriate columns of the following table.

For expedited ethics review, please answer the following Key Questions	NO	YES
1. Does the study involve any activities that may cause psychological stress?	X	
2. Are any subjects under the age of 18 or otherwise potentially unable to give informed consent?	X	
3. Will students be audio taped/ videotaped as part of the study? <i>If you answered ‘Yes’, please complete Question 1 of Section B of this Part.</i>	X	
4. Does the study involve students providing information that may have potential legal or ethical issues (e.g., sexual conduct or orientation, on illegal activities, or on use of banned substances)? <i>If you answered ‘Yes’ please complete Question 2 of Section B of this Part.</i>	X	

Section B

1. If you answered YES to the Question 3 above, please state how students' privacy will be protected (e.g., who will handle and access the data, where it will be stored, and how it will be reported in order to protect student privacy).
2. If you answered YES to the Question 4 above, please provide, in a separate document, further justification for the study.

7 Project Proposal Submission

(i) Proposal Submission by PPS:

I understand and will abide by all applicable University policies and rules as well as specific terms and conditions as specified in the TLC proposal form and guidelines. *(In signing below, the PPS is confirming the accuracy of the information provided and adherence by all staff participating in the project).*

Name: Prof. XIE Haoran Signature:  _____

(in block letters)

Dept / Faculty / Unit / Centre: CDS Date: 29 April 2021

Please send the completed proposal **(in soft copy as MS Word and a signed.pdf)** to TLC (tlc@ln.edu.hk) on or before the specified submission deadline.

References

- [1] Vv.Aa., 21st century skills by the glossary of education reform, 745 <http://edglossary.org/21st-century-skills/>, 2016.
- [2] B. Trilling, C. Fadel, 21st century skills: Learning for life in our times, John Wiley & Sons, 2012
- [3] Xu, Z., Tang, N., Xu, C., & Cheng, X. (2021). Data science: Connotation, methods, technology, and development. *Journal of Information Technology and Data Management*, 0. <https://doi.org/10.1016/j.dsm.2021.02.002>
- [4] Konak, Abdullah; Clark, Tricia K.; Nasereddin, Mahdi (2014). *Using Kolb's Experiential Learning Cycle to improve student learning in virtual computer laboratories. Computers & Education*, 72(), 11–22. doi:10.1016/j.compedu.2013.10.013
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- [6] Fry, R., & Kolb, D. (1979). Experiential learning theory and learning experiences in liberal arts education. *New directions for experiential learning*, 6, 79.
- [7] Bandura, A. (1963). Social reinforcement and behavior change—Symposium, 1962: 1. Behavior theory and identificatory learning. *American Journal of Orthopsychiatry*, 33(4), 591–601. <https://doi.org/10.1111/j.1939-0025.1963.tb01007.x>
- [8] Kolb, A., & Kolb, D. (2005). Learning Styles and Learning Spaces: Enhancing Experiential Learning in Higher Education. *Academy of Management Learning & Education*, 4(2), 193-212. Retrieved March 28, 2021, from <http://www.jstor.org/stable/40214287>
- [9] Jacob, Sabrina Anne; Boyter, Anne C. (2020). “It has very good intentions but it’s not quite there yet”: Graduates’ feedback of experiential learning in an MPharm programme Part 2 (TELL Project). *Studies in Educational Evaluation*, 66(), 100889–. doi:10.1016/j.stueduc.2020.100889
- [10] Lim, Ji Young; Lim, Kyu Yon (2020). *Co-regulation in collaborative learning: Grounded in achievement goal theory. International Journal of Educational Research*, 103(), 101621–. doi:10.1016/j.ijer.2020.101621